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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/326,785	06/04/1999	ERICH FRANZ HARATSCH	1-4	4629

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EXAMINER

KUMAR, PANKAJ

ART UNIT

PAPER NUMBER

2631

DATE MAILED: 01/10/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/326,785

Applicant(s)

HARATSCH ET AL.

Examiner

Pankaj Kumar

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10/31/2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 1-22 have been considered but are moot in view of the new ground(s) of rejection.
2. The new versions of the claims have "... processing intersymbol interference ..." DUE TO less or more "... significant taps ...". Support for this can be found on page 6 lines 3-4 of applicant's specification which says "... removes the less significant intersymbol interference (ISI) introduced by the tail channel taps ...".

Response to Amendment

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-22 are rejected under 35 U.S.C. 102(b) as being anticipated by Amrany USPN 5319585.
5. As per claim 1, Amrany teaches a method for processing a signal received from a dispersive channel (Amrany fig. 3 has echo cancellers and thus the channel is dispersive), said channel having a memory length, L, and being modeled as a filter having L taps (inherent for echo canceller, which is a filter, to have taps and each tap requires one delay element and thus the delay element is the memory), said method comprising the steps of: processing ISI (Amrany col. 1 lines 43 to 51; paragraph 5; paragraph 7; equalizer compensates for ISI and thus the figures

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with the equalizers) due to less significant taps (Amrany fig. 2: 92) with a lower complexity cancellation algorithm (Amrany col. 6 last paragraph indicates echo cancellers 548 and 545 are not adapted in parallel since they would chase each other and thus it is a lower complexity algorithm than one that would chase each other; it is also less complex than another system since another system could have more elements such as more filters; 545 is the course echo canceller and 548 is the fine echo canceller as indicated in cols. 6-7) that cancels the less significant taps using tentative decisions (Amrany col. 6 equation 12; fig. 3: 548 with 549 with 546); and processing ISI due to more significant taps (Amrany fig. 2: 91) with a reduced state sequence estimation (RSSE) technique (Amrany fig. 3: 545 with 546; this is a reduced state compared to 548 with 549 with 546 since it requires fewer elements).

6. As per claim 2, Amrany shows the method according to claim 1 wherein said lower complexity cancellation algorithm is a decision feedback equalizer technique (Amrany fig. 3: output of 546 goes into 547 and 548 and eventually is fed back to 546).

7. As per claim 3, Amrany shows the method according to claim 1 wherein said lower complexity cancellation algorithm is a soft (Amrany fig. 3: Beta 2 and alpha can change and thus it is soft) decision feedback equalizer technique (Amrany fig. 3: output of 546 goes into 547 and 548 and eventually is fed back to 546).

8. As per claim 4, Amrany teaches the method according to claim 1 wherein said lower complexity cancellation algorithm reduces the ISI associated with said less significant taps (Amrany: discussed above and also equation 12).

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9. As per claim 5, Amrany teaches the method according to claim 1 wherein said more significant taps comprise taps below a tap number, U , where U is a prescribed number less than L (Amrany fig. 2: $y, w=16, z=24$).
10. As per claim 6, Amrany teaches the method according to claim 1 with sampling (inherent)
11. As per claim 7, Amrany teaches the method according to claim 1 with digitizing (Amrany fig. 3: 135)
12. As per claim 8, Amrany teaches the method according to claim 1 wherein RSSE is a decision feedback sequence estimation technique (Amrany fig. 3: element 540 which encompasses RSSE as indicated earlier has feedback).
13. As per claim 9, Amrany teaches the method according to claim 1 wherein RSSE is a parallel (Amrany fig. 3: output of 548 and 545 are diagramed in parallel even if they do not operate in parallel) decision feedback sequence estimation technique (Amrany fig. 3: element 540 which encompasses RSSE as indicated earlier has feedback).
14. Claim 10 to 22 are discussed above with respect to claims 1 to 9.

Conclusion

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.
16. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Pankaj Kumar whose telephone number is (703) 305-0194. The examiner can normally be reached on Monday through Thursday after 8AM to after 6:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chi H. Pham can be reached on (703) 305-4378. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9314 for regular communications and (703) 872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3800.

PK
January 7, 2003


CHI PHAM
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600 1/8/03